REMARKS

Status of the Claims

Claims 1-12 are now present in this application. Claims 1, 5, 6 and 10 are independent.

Claims 5 and 10 have been withdrawn, claims 11-12 have been added and claims 1-2 and 6-7 are amended through this Reply. Upon careful review, one would conclude that no new matter has been added to the application via this amendment. Reconsideration of this application, based on the following remarks, is respectfully requested.

Rejection Under 35 U.S.C. § 102

Claims 1-4 and 6-9 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Sato, et al., U.S. Publication No. 2003/0156204 (hereinafter "Sato"). This rejection is respectfully traversed.

For a Section 102 rejection to be proper, the cited reference must teach or suggest each and every claimed element. *See M.P.E.P. 2131; M.P.E.P. 706.02.* Thus, if the cited reference fails to teach or suggest one or more elements, then the rejection is improper and must be withdrawn.

It is respectfully submitted that Sato fails to teach or suggest each and every claimed element as amended. For example, independent claim 1 recites, *inter alia*, "a distance-correction value calculating step of ***receiving the calculated distance as an input variable of an N-order function having a plurality of coefficients for the input variable, and calculating a distance-correction value as an output value of the N-order function***, N being a positive integer ***greater than or equal to 2***; a correction coefficient calculating step of calculating, based on a preliminarily set table that represents correspondences between distance-correction values and correction coefficients, a correction coefficient corresponding to the calculated distance-correction value; a pixel signal correcting step of correcting a signal for the pixel based on the calculated correction coefficient; and an ***updating step of updating distance-correction values by changing the coefficients for the input variable in said N-order function in the distance-correction value calculating step in response to change in optical settings of an image pick-up apparatus***." *Emphasis added.*

Likewise, independent claim 6 recites, *inter alia*, "a distance-correction value calculating unit that ***receives the calculated distance as an input variable of an N-order function having a plurality of coefficients for the input variable and calculates a distance-correction value as an output value of the N-order function***, N being a positive integer ***greater than or equal to 2***; a correction coefficient calculating unit that calculates, based on a preliminarily set table that represents correspondences between distance-correction values and correction coefficients, a correction coefficient corresponding to the distance-correction value that has been calculated by the distance-correction value calculating unit; a pixel signal correcting unit that corrects a signal for the pixel based on the correction coefficient that has been calculated by the correction coefficient calculating unit; and a control unit that ***updates distance-correction values by changing the coefficients for the input variable in said N-order function in the distance-correction value calculating unit in response to change in optical settings of said image pick-up apparatus***." *Emphasis added.*

It is respectfully submitted that Sato fails to teach or suggest the above-identified feature of claims 1 and 6.

On page 4 of the Office Action, the Examiner points out that a converter 6 illustrated in FIG. 1 of Sato discloses the claimed "distance-correction value calculating step (or unit)." As described in paragraphs [0042] and [0043] of Sato, a distance calculation block 4 calculates a value d indicating the distance from an optical axis center position, and the converter 6 converts the value d into a corrected value by bit-shifting for multiplying the value d by a multiplier value corresponding to the number of pixels of the currently-used one of seven types of semiconductor image pick-up devices, in accordance with Table 1 of Sato. Namely, the converter 6 of Sato merely multiplies the value d by the multiplier value α to generate a corrected value of $d \times \alpha$.

In contrast, the claimed "distance-correction value calculating step (or unit)" is a step of "***receiving the calculated distance as an input variable of an N-order function having a plurality of coefficients for the input variable, and calculating a distance-correction value as an output value of the N-order function, N being a positive integer greater than or equal to 2***."

In this regard, as described on page 15, line 19 through page 16, line 1 of the originally-filed specification, the distance correcting unit 23 calculates the distance-correction values S by using equations (7), (8) and (9) whose right-hand sides are 2-order polynomial functions, where

D is an input variable of the 2-order polynomial functions. Thus, the distance correcting unit 23 is capable of calculating the distance-correction value S that involves the 2nd power of D (i.e., the square of D).

Hence, since the claimed "distance-correction value calculating step (or unit)" includes "calculating a distance-correction value as an output value of the N-order function, N being a positive integer greater than or equal to 2," the claimed "distance-correction value calculating step (or unit)" is capable of calculating the distance-correction value that involves the 2nd or higher power of the calculated distance.

On the other hand, the converter 6 of Sato cannot calculate the corrected value involving the 2nd or higher power of the value d, because the converter 6 does not use any N-order functions where N is a positive integer greater than or equal to 2, merely calculating the corrected value of $d \times \alpha$.

Therefore, the converter 6 of Sato fails to teach or suggest the claimed "distance-correction value calculating step (or unit)".

Further, a LUT 8 of Sato fails to teach or suggest the claimed "correction coefficient calculating step (or unit)" of calculating a correction coefficient based on the claimed preliminarily set table, because the calculated correction coefficient corresponds to the distance-correction value calculated by the claimed "distance-correction value calculating step (or unit)."

Still further, Sato fails to teach or suggest the claimed "updating step (or control unit) of updating distance-correction values by changing the coefficients for the input variable in said N-order function," because the claimed N-order function (where N is a positive integer greater than or equal to 2) is not taught by Sato. As compared with Sato, the claimed "updating step (or control unit)" has an advantage of enabling the coefficients of the N-order function to quickly follow the change of the optical settings. In this regard, see page 11, lines 1-13 of the originally filed specification.

The Examiner is correct to note that Sato discloses providing correction coefficients for seven different semiconductor image pick-up devices. However, Sato is completely silent in ***updating distance-correction values*** by ***changing the coefficients for the variable*** in an ***N-order function in the distance-correction value calculating step in response to change in optical settings of an image pick-up apparatus***.

The Examiner points to Fig. 1, element 7 of Sato as disclosing the above-noted feature. As taught by Sato, element 7 is merely a terminal via which a data signal indicating the number of pixels of the image pick-up device 3 is supplied to a converter 6. (*See paragraph [0042].*) Indeed, Sato discloses a Table 1 in which the values of the Table 1 are provided calculations of the number of pixels forming the maximum distances (diagonal lines) for each of seven types of semiconductor image pick-up devices, the number of pixels of which range from 790,000 pixels to 12,600,000 pixels. (*See paragraph [0043].*) Sato provides no teaching or suggestion of updating the values of the Table 1. Similarly, Sato provides no teaching or suggestion of updating the values of the LUT 8.

As previously submitted, since the claimed invention updates distance-correction values by changing the coefficients for the variable in the N-order function in the distance-correction value calculating step ***in response to change in optical settings of an image pick-up apparatus***, the claimed invention is capable of making dynamic adjustments for different properties of the apparatus by providing changeable coefficients for calculating distance-correction values.

Sato fails to teach or suggest correcting a signal for a pixel based on a correction coefficient corresponding to distance-correction value updated by changing coefficients for the variable in the N-order function in the distance-correction value calculating step. Sato, therefore, does not teach or suggest the ability to make dynamic adjustments for different properties of the apparatus by providing changeable coefficients for calculating distance-correction values.

Accordingly, it is respectfully submitted that Sato cannot teach or suggest, *inter alia*, "***updating distance-correction values*** by ***changing the coefficients for the variable*** in an ***N-order function in the distance-correction value calculating step in response to change in optical settings of an image pick-up apparatus***" as recited in claim 1 (and similarly recited in claim 6).

Therefore, for at least these reasons, independent claims 1 and 6 are distinguishable from Sato. Claims 2-4 depend from claim 1 and claims 7-9 depend from claim 6. Therefore, for at least the reasons stated with respect to claims 1 and 6, claims 2-4 and 7-9 are also distinguishable from Sato.

New Claims

New claims 11-12 are allowable at least by virtue of their dependency on corresponding independent claim and further in view of novel feature recited therein. For example, claim 11 recites, *inter alia*, "*wherein with regard to change of the coefficients of the N-order function and change of parameters for the preliminarily set table, said updating step implements either one or both of the changes, depending on a nature of change in properties of the image pick-up apparatus and on required tracking performance of correction for the change in the properties of the image pick-up apparatus.*" Claim 12 also recites similar feature. It is respectfully submitted that Sato fails to teach or suggest this newly added feature.

Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Ali Imam, Registration No. 58,755 at the telephone number of the undersigned below to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Director is hereby authorized in this, concurrent, and future replies to charge any fees required during the pendency of the above-identified application or credit any overpayment to Deposit Account No. 02-2448.

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Respectfully submitted,

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